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Research Article

Enhancing Quality of Life in Venous Ulcer Patient with *Irsal-e-Alaq* (Hirudotherapy): A Case Report

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Abstract



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Background: In general practice, venous ulcers (stasis ulcers) are the most common and recurrent leg ulcers. Ignorance of it can have a severe detrimental effect on one's quality of life, cause gangrene, and even the limb amputation. Venous ulcers are the most dangerous and disabling side effect of chronic venous insufficiency. Leech therapy seems to be effective for the treatment of varicose ulcers due to its salivary secretions which it injects during bloodsucking. The saliva of leeches contains certain biochemical with vaso-dilating, anticoagulant, anesthetic, thrombolytic, antibiotic, analgesic, and anti-inflammatory properties. As a result, *Irsal-e-Alaq* (Hirudotherapy), one of the *Unani* regimens, can effectively control it. **Objective:** The purpose of this case report is to provide insight into the effects of *Irsal-e-Alaq* (Hirudotherapy) on venous ulcers. **Intervention:** A 60-year-old male has a complaint of ulceration in his left lower leg near the medial malleolus with swelling, pain, discharge, and darkening of the skin of the left lower limb. Four leeches were applied once every week for 2 months. Efficacy of leech therapy was assessed on every 15th day by pain /leg discomfort on 4 point scale ranging from 0-3, limb girth at calf, ankle & foot, pigmentation color on 4 point scale, pigmentation area, pain in ulcer on 4 point scale from 0-3, ulcer depth, PUSH Score. Hb% was assessed every 15th day to check anemia, colour flow Doppler was done to assess any change in vein anatomy. **Result:** In this case report, the ulcers were completely healed, and also showed remarkable improvement in other variables. **Conclusion:** *Irsal-e-Alaq* has been proven beneficial in treating venous ulcers and enhancing patient's quality of life.

Keywords: Venous ulcer, Hirudotherapy, *Unani* Medicine, Pain, Pigmentation.

Introduction:

Venous ulcers, sometimes known as stasis ulcers or varicose ulcers, are lesions that are believed to be caused by malfunctioning valves in the veins, primarily in the legs. ¹ It is one of the most serious consequences of venous varicosities. The root cause of this type of ulcer is venous stasis or stagnation. Leg ulcers are usually caused by a chronic venous condition, such as deep vein thrombosis or varicose veins. Venous leg ulcers are caused by elevated venous circulation pressure, which can be attributed to deep vein thrombosis (DVT) or superficial vein reflux (varicose vein).² Venous ulcers represent up to 80% of all lower extremity ulcers.³

Venous ulcers develop slowly. Symptoms may include aching, heaviness, leg-tiredness, cramps, itching, burning, and swelling. These symptoms often worsen with prolonged standing and improve with leg elevation.⁴ All the signs & symptoms of varicose veins develop due to the accumulation of superfluous/morbid matter in the lower limb. In the *Unani* system of medicine, there are three methods of treatment viz; *Ilaj Bit Tadbeer wa Ghiza* (Regimenal therapy and Dietotherapy), *Ilaj Bil Dawa* (Pharmacotherapy), and *Ilaj Bil Yad* (Surgery). Amongst these, *Ilaj Bit Tadbeer* is one of the most popular methods of

treatment practiced by ancient *Unani* physicians for ages. *Ilaj Bit Tadbeer* means treatment through regimens, which is done by doing modification in *Asbabe Sitta Zarooriya* (six essential factors for life) to attain general health.^{5, 6} *Unani* (Greek-o-Arab) physicians used leeches for a wide range of diseases starting from conventional use for bleeding to systemic ailments such as skin diseases, nervous system abnormalities, vascular diseases, inflammation, cardiovascular problems, cancer, and infectious diseases. Leech application has been used traditionally for the treatment of non-healing ulcers like venous ulcers. Leech saliva contains bioactive peptides and proteins involving anti-thrombin, antiplatelet, factor Xa inhibitors, antibacterial, etc. So it is used as a protective tool for venous congestion prevents venous ulcer complications like gangrene and amputation helps in ulcer healing.⁷ Present work is an attempt to highlight the role of *Irsal-e-Alaq* (Hirudotherapy) in alleviating the venous ulcer.

Material and Methods:

Selection of case- A diagnosed patient with venous ulceration was taken for the study from Regimenal therapy OPD of Markaz Unani Medical College & Hospital, Kozhikode, Kerala.

Case Presentation:

This patient was a 60-years old male who attended our OPD of the Markaz Unani Medical College & Hospital on 21/11/2023 with complaints of ulcer in the left lower leg, pain, swelling in the left lower leg, and darkening of skin over left lower leg. He has been managing the condition with antiseptic dressings and oral antibiotics for one year. He took treatment at multiple care centers but had no relief. The patient had no comorbidities and there was no history of smoking/alcohol/drug/ tobacco chewing. The systemic examination of the patient was done, and all the vital parameters were found within normal limits. Sensory functions (pain, touch, pressure, and temperature) were normal. The patient was hemodynamically stable. In Local Examination, localized swelling and a surgical scar were also observed on the anteromedial aspect of the left lower leg. The skin of the lower left leg was hyperpigmented and thickened. Dorsalis pedis arterial pulsation was felt. No lymph node was found palpable. X-ray of the foot shows no bony involvement.

Informed consent:

The Patient was willing for this study, and informed consent was taken before the start of intervention.

Therapy procedure:

Leeches were applied weekly for two months. Fresh unused, well-cleaned leeches are gathered 24 hours before starting a leech therapy session. Leeches were sent for identification to the Zoology department and have been identified the leeches as *Hirudinaria granulosa*. Small and ventilated containers partly filled with water for leeches were used. These containers were labeled with the patient's name. Before starting a leech therapy session, Waterproof padding and towels, Bandages or highly absorbent material, Adhesive tape, Water, Scissors, a disposable razor, and Surgical-gloves, were required and gathered.

Patient was advised not to use perfume or chemicals on the skin at the intended application site for at least 2 days before treatment. The skin of the target area was thoroughly cleaned with soap and water or removes all substances with strong odor or taste because leeches are very sensitive to a strong odor. After wearing surgical gloves, active and healthy leeches were selected and the head of the leech was put at the targeted area, attachment generally occurs quickly. If the leech was reluctant to bite, a small needle prick was made on the skin to produce a tiny droplet of blood, which results in enthusiastic attachment. The target area was kept warm and dark by covering it with a towel or other material. Leeches usually stay attached for 30-60 minutes and fall itself. When the leeches dropped off they were placed in a jar labeled with the patient's name to avoid confusion between used and unused animals and to prevent use on another patient. The tripartite jaw of the leech makes a three-pronged Y-shaped bite wound. After the leech has dropped off it usually takes 3-48 hours for the wound to stop bleeding. The slow drainage of blood is an important

part of treatment. The drainage of blood reduces venous congestion. When there was a good outflow of blood after leech feeding, the wound was loosely covered and the extent of bleeding 15-30 minutes later, if satisfactory, a loose dressing was applied. The patient was advised to avoid strenuous physical activity until the bleeding stop naturally. Primary dressings consist of a wide and thick sterile pad to absorb all the blood oozing from the wound. The layers of padding were loosely secured with a gauze bandage that was not so tight that it obstructed the blood flow.

Efficacy and Safety Assessment:

For efficacy assessment, the Baseline observations were recorded on zero-day thereafter at an interval of 15 days to 2 months. At every visit, the patient was asked about the improvement and worsening in their symptoms and subjected to examination to assess clinical findings. Concomitant treatment was not allowed during the protocol period. The Intensity of leg pain/leg discomfort during walking was assessed on 4 point scale ranging from 0-3 (0 for no pain, 1 for mild pain i.e. Irritating & uncomfortable, 2 for moderate i.e. Dreadful & Horrible, and 3 for severe pain i.e. unbearable or Agonizing). Pigmentation was assessed by color of pigmentation & area of pigmentation, Colour of pigmentation was scored as 0 for none, 1 for Reddish to light brown, 2 for Light brown to dark brown, and 3 for dark brown to blackish. The area of pigmentation was obtained by multiplying the greatest length of the ulcer (head to toe) and the greatest width of the ulcer (side to side) i.e. length $\times$ width. Both dimensions were measured by a centimeter ruler. Oedema was measured by taking the difference between the values of limb girth, before and after the treatment. Limb girth was measured at 3 points, i.e. calf, ankle, and foot. The intensity of pain in the ulcer was assessed on 4 points scale ranging from 0-3 (0 for no pain, 1 for mild pain i.e. Irritating & uncomfortable, 2 for moderate i.e. dreadful & horrible and 3 for severe pain i.e. unbearable or Agonizing). Healing of ulcer was assessed by PUSH Tool 3.0. For this scale, three parameters of the wound were assessed i.e. Size /area of the wound, exudate amount, and tissue type or condition of ulcer bed. Appropriate scores were assigned to these parameters and the sum of the scores yields a total wound score. The score ranges from 0 (healed) to 17 (worst possible score). The PUSH score was determined at each wound assessment to monitor the changes in the direction and magnitude of the score over time indicates whether the wound is healing or not.⁸ Color flow Doppler ultrasound was carried out to exclude arterial disease and to determine the patency of the vein and a bidirectional flow probe was used to detect venous reflux. This investigation was carried out with the patient standing. The assessment of the safety of the treatment was done by hematological assessment (before and after the treatment) TLC, DLC, ESR, CT, BT, and Biochemical assessment (before and after the treatment) - Blood sugar fasting and Postprandial, HBsAg, Elisa test for HIV and AIDS were carried out for not to perform leech therapy. Hb% assessment was done on every 15th day to check anemia. Color flow Doppler was done before and after treatment [Table 1].

Table 1: Effects of Leech Therapy on Efficacy Parameters

PARAMETERS	0 Day	15th Day	30th Day	45th Day	60th Day
Hemoglobin	12.8	13.1	13.5	13.3	13.4
Limb girth of affected limb (cm)					
At calf	38	37	36	36	35
At ankle	30	30	29	28	27
At foot	26	26	25	23	22
Pigmentation:					
Color	3	3	3	2	2
Area (cm ²)	600	550	360	250	150
Assessment of ulcer:					
Pain in ulcer	2	2	1	1	0
Exudates type	Serous	Serous	None	None	None
PUSH Score	14	12	10	8	0
Leg discomfort	2	1	1	1	0
Color flow Doppler					
SFJ	Incompetent				Incompetent
SPJ	Competent				Competent

Result:

A significant improvement was seen in the patient's symptoms and signs with leech therapy, as shown in Figs. 1-4 and Table 1.

Discussion:

A 60-year-old man was observed for 60 days after developing a venous ulcer in his left lower leg, above the medial malleolus, as described in this case report. Leech treatment was applied locally to the patient. Antiseptic bandages, various medications such as oral antibiotics, local antibiotics, and surgery might somewhat, but not totally, alleviate symptoms in the conventional medical system. Therefore, the development of a treatment that may completely cure venous ulcers and lessen their associated symptoms without causing any side effects is urgently needed. Leeches can be extremely helpful in certain situations, especially given the advancements in medical technology. Considering the above mentioned aspects, *Irsal-i-Alaq* (Leech Therapy) was selected to evacuate morbid humor from the blood vessels by its sucking property and hence found effective in this case. The reason why leech therapy has worked is that the presence of several pharmacologically active substances and enzymes in the leech's saliva, i.e., hirudin, hyaluronidase, Eglin, calin, bdellins, etc. Hirudin and calin are anticoagulants, as the main cause of venous ulcer is venous insufficiency which causes stasis and these enzymes from leech's saliva help decrease stasis and slowly cleansing the wound by maintaining secondary bleeding for approximately another 12 hours. Histamine-like substances have a dilatation effect on the blood vessels and thereby causing an increase in the bloodstream to the bite site and helping in wound healing due to circulation. The hyaluronidase increases the membrane permeability, reduces the viscosity, promotes the diffusion of injected fluids,

and acts as an antibiotic. Bdelin and Eglin enzymes acts as anti-inflammatory, antioxidant, and protease inhibitors and inhibit trypsin, plasmin, and acrocin to reduce swelling due to venous congestion. Eglin is well tolerated on the central nervous system and prevents neutrophil infiltration (adhesion, penetration, and migration) into inflamed vessels and neutrophil-mediated injury to the microvascular endothelium,-

Thus helping in granulation. Apyrase is a nonspecific inhibitor of platelet aggregation by its action on adenosine 5' diphosphate, arachidonic acid, platelet-activating factor (PAF), and epinephrine.

**Figure 1: Before treatment**



Figure 2 & 3: During treatment



Figure 4: After treatment

Destabilase: Dissolves fibrin and has thrombolytic effects, which help in healing. Acetylcholine is a vasodilator that decreases stasis and increases blood circulation towards ulcer which promotes healing.^{9,10} As per the *Unani* concept, impure blood is extracted from the body, thus releasing the body from toxins, and the circulation of fresh blood takes place at the site of the lesion, which makes the healing process easier. The patient was asked to follow up in OPD. However, no reoccurrence of any signs and symptoms was seen. *Irsal-i-Alaq* (Leech Therapy) proved very effective in this patient of venous ulcer. However, further evaluation with a large sample size is required to show its significance for venous ulcers.

Conclusion:

In conclusion, a variety of illnesses have been treated with *Irsal-i-Alaq* (Leech Therapy), a well-liked therapeutic approach over the years. Regarding venous ulcers, it is an extremely effective and reasonably priced therapeutic approach. It takes off dead tissue slough and promotes the development of epithelialization and healthy granulation tissue. Based on the case's outcomes, it seems that *Irsal-e-Alaq* can be used to treat venous ulcer cases of this kind and enhance the quality of life for those patients while also having a relatively long-term clinical efficacy and no side effects. However, further research on this therapy is critical and needs immediate funding. Scientific use of this therapy is urgently needed.

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Conflict Of Interest:

The authors declare that there is no conflict of interest.

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